

MUNOFS VI Research Report

Forum: ECOSOC

Issue: Measures to promote best practice in irrigation agriculture for LEDC's

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Introduction:

Agriculture is the cultivation of animals, plants, fungi and other life forms for food, fiber, biofuel, drugs and other products used to sustain and enhance human life [1]. The earliest instances of agriculture happened between 10,000 and 13,000 years ago. This gradual transition from being hunter-gatherers to cultivators started the Neolithic Revolution.

Irrigation is a crucial component of agriculture. Plants and animals need water to survive, and so to have healthy, living crops, water will have to be added. Early agriculture usually relied on the rain to water the crops; also known as "dry farming". When rain was scarce, water was usually carried from rivers to the crops with buckets, similar to how many rural farmers in LEDC's still do today. This is called "wet farming".

The early Egyptians used the flood waters of the Nile river to irrigate and flood their fields. They also invented a Nilometer (3500 BC) to measure the depth of the river, and a machine called a shaduf (1700 BC), a pole with a weight and a bucket used to lift water from a lower river to the fields.

The first water regulations were distributed by the Babylonian King Hammurabi. The three general rules formulated in 1792 BC were A) The distribution of water is proportionally based on the acres farmed, B) A farmer has the responsibility for maintaining canals in his property, and C) Collective administration on the canal for all users.

Overtime with technological advances, there are now a lot of different efficient irrigation systems, including flood irrigation, drip irrigation, sprinklers (center pivot, lateral move), subirrigation, and condensation. However, many areas in the world, mostly LEDC's, still use buckets and manual methods of irrigating crops.

Key Terms Defined:

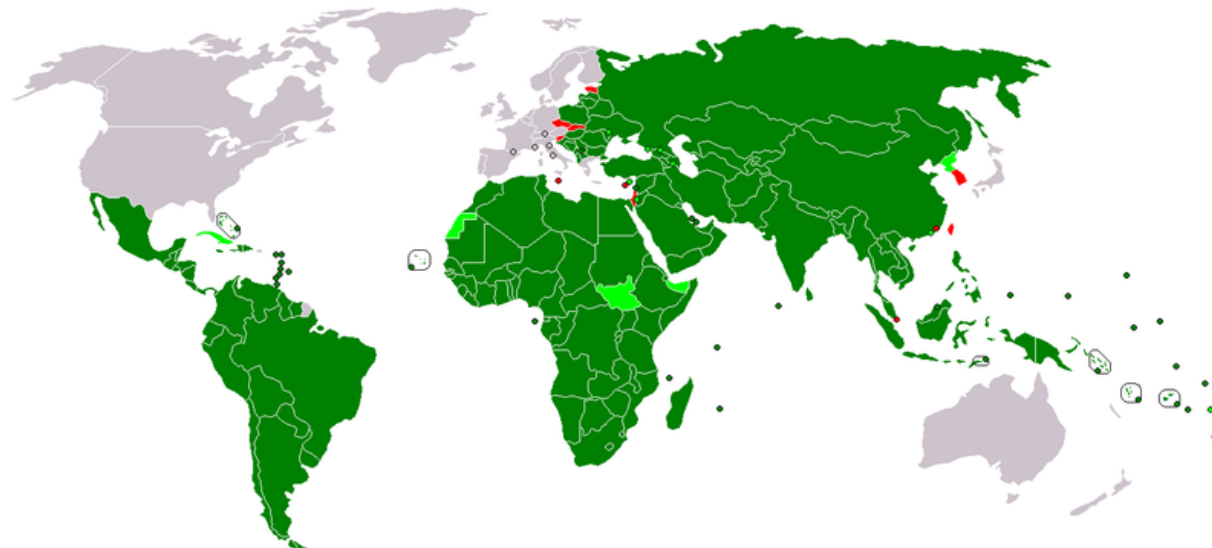
Agriculture: The cultivation of animals, plants, fungi, and other life forms for food, fiber, biofuel, drugs and other products used to sustain and enhance human life [1].

Aquifer: A water-bearing layer of rock, sand, or gravel. Many farmers obtain water from these underground sources for irrigation. [13]

Irrigation: The artificial application of water to the land or soil [5] .

Globalization: The process in which ideas, commodities, and technologies are spread around and diffused throughout the world in everyday life. The spreading of technology throughout the world. [11]

LDC: Less Developed Countries. Nations with low living standards, underdeveloped industrial bases, and low Human Development Index compared with other countries. GDP may also be compared [4].



dark green - developing according to the IMF
light green - developing out of the scope of the IMF
red - graduated to developed

[12]

LEDC: Less Economically Developed Country. The poorest subset of LDC's. Used to describe the poorest nations [4].

General Overview:

Globalization has led to the improvement of technology to the entire world. However, many less developed countries (LDC's), do not have the same, sophisticated technologies other more richer and more developed countries have. This means that their irrigation is comparatively more inefficient, more time consuming, and less reliable. Agriculture is the backbone of many LDC's, composing from 30 to 60 percent of their GDP's.

Water is a very scarce resource. Of the world's water, only 1% of it is in the form of liquid, potable water. Agriculture uses around 70% of all fresh, potable water available for human usage. 1 kg of rice requires 3,500 liters of water, and 1 kg of beef requires a massive 15,000 liters [2]. Together with the rising global population, the demands for both food and water is rising at an incredible rate. This requires us that we use more efficient and sustainable methods of irrigation for crops to ensure that water is not wasted.

Irrigation in LEDC's nowadays are considered to be very inefficient. Hundreds of liters of irrigated water is lost to evaporation, canal leakage, spillage, and seepage. Irrigated fields that are not drained properly are liable to become infertile due to the salt left in the soil by the evaporated water. Around a fifth of irrigated land in developing countries has now been damaged by water logging or salinity [3]. Wastage of water also drains underground aquifers faster than they can be filled naturally. Poorly managed waste water can be polluted by chemicals, contaminating other clean water sources and damaging the environment [5].

All of these provide an overwhelming number of evidences that water is not an infinite resource, and nations and governments, especially those of LEDC's, must promote greatly better practices of irrigation agriculture.

.Major Parties Involved and Their Views

Kenya: Kenya has many schemes for water management. There are many farmer organizations that work with the government and governmental organizations. They collaborate in building waterways for irrigation and other farming schemes. The Kenyan government is creating many reservoirs for farmers to use instead of draining underground aquifers, but due to the lack of money many plans were abandoned and are delayed [8].

Senegal: In 2003, Senegal started PAPIL, Project to Support Local Small-Scale Local Irrigation Support. The plan was to contribute towards food security through small scale irrigation projects. Some of the projects were the construction of anti-salt dyke, watering ponds, irrigation structures and many other irrigation developments. However due to rising costs of materials and services, the 5 year project is still underway [10].

Sudan: Irrigation equipment provided through an initiative managed by the UNDP (United

Nations Development Programme) has helped more than 1000 farmers in Northern Sudan. Farmers in Sudan have agreed that the help they have received has increased their yields and saved some water [6]. Sudan is an LDC.

Timeline of Events

10,000 BC	First instance of agriculture found.
+4,000 BC	Ancient Egyptians started using the flooding Nile River to irrigate the land.
1792 BC	First water regulations formed by Babylonian King
1945 AD	Formation of the FAO. AQUASTAT is the FAO's global water information system
1993 AD	Formation of World Water Day (22nd March)
2013 AD	Declared to be World Water Year

UN Involvement, Relevant Resolutions, Treaties and Events

According to a survey by the United Nations Environment Programme (UNEP), the amount of water per person in Africa is declining. Only 26 of the 53 countries in Africa by half the number of people without access to sustainable clean water by 2015.

The UN has already requested that relevant organizations such as the Food and Agricultural Organization of the United Nations and the International Fund for Agricultural Development to promote and support the exchange of experience between member states on sustainable and conservative agriculture, possibly including irrigation. (Resolution 66/195 of GA) [7].

AQUASTAT of the FAO (Food and Agricultural Organization of the United Nations) has developed a 3 step method in reviewing a country's water usage, requirements, and how much more they need or don't need. Already 167 countries have been researched. The data can be used by each member states' governments to manage local water usage effectively [9].

Possible Solutions

The possible solutions of promoting best practice in irrigation agriculture for LEDC's are:

Asking the governments of LEDC's to significantly increase the share and effectiveness of public expenditures for agricultural development, specifically irrigation.

Training farmers in sustainable irrigation agriculture practices, and provide incentives and platforms for the farmers so that they will know that there is a good reason to participate in these practices and apply more sustainable irrigation practices in their farms.

Supporting farmers in creating groups for sharing knowledge, sharing resources, and planning projects that will benefit all farmers. The meetings will also spread technology and efficient methods and collaborations throughout those who participate and greatly improve irrigation in addition to other agriculture related topics. The meeting can be on a both local and national scale. International meetings can also be a plausible method.

Provide feasible and affordable water saving irrigation systems that are available to farmers in LEDC's. Such systems may include but are not limited to simple drip systems, and low cost pumps.

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